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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/725,564	12/03/2003	Ephraim Gutmark	003-099	4003
36844	7590	06/13/2005	EXAMINER	
CERMAK & KENEALY LLP 515 E. BRADDOCK RD ALEXANDRIA, VA 22314			COCKS, JOSIAH C	
			ART UNIT	PAPER NUMBER
			3749	

DATE MAILED: 06/13/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No. 10/725,564	Applicant(s) GUTMARK ET AL.	
	Examiner Josiah Cocks	Art Unit 3749	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 03 December 2003.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-8 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 03 December 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>various dates (3)</u> . | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Drawings*

1. The drawings filed 12/03/2003 are accepted by the examiner.

### *Claim Rejections - 35 USC § 112*

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 1-7 rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In the preliminary amendment filed 12/03/2003 the claims were amended to remove the use of the phrase “and/or” and instead recite “or both” following a list (e.g. claim 1, lines 2-3: “...in which a gas flow forming in the region of the burner is excited acoustically, in which modulated injection of fuel is carried out, *or both...*” (*emphasis added*). However, in each case where “or both” has been included the claim is now unclear. In each case, the claim reads as if all elements of the list preceding “or both” are components of the claim included in combination with one another. However, the phrase “or both” suggests that these components are intended to be recited in the alternative. As best can be determined, and for the purpose of an examination on the merits, it appears applicant intended to include the term “or” between each portion of the list. For example it appears claim 2, lines 2-3 should read “affecting two interference frequencies exclusively by excitation of the gas flow with different phases, *or* amplitudes, or

both.” (**emphasis added**). Applicant should inspect and amend each claim to include “or” at the necessary location.

***Claim Rejections - 35 USC § 102***

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1-3, 7, and 8 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 6,464,489 to Gutmark et al. (“Gutmark ‘489”) (cited by applicant).

Gutmark ‘489 discloses in Figures 1-10 the invention as described in applicant’s claims 1-3, 7, and 8. In particular, Gutmark shows a device and method for affecting thermoacoustic oscillations in a combustion system including a burner in which a gas flow forming in the region of the burner is excited acoustically (see Abstract). It is recognized that multiple frequency waves are introduced into a gas flow shear layer (see col. 2, lines 32-61) and that the acoustic excitation functions to counteract, and is thus coordinated with, the formation of interference frequencies (see col. 3, lines 54-59). Gutmark ‘489 further discloses a control system that includes one or more acoustic sources (10) producing acoustic excitations of different phases or amplitudes and a filter (20) (see col. 5, lines 22-63).

*Claim Rejections - 35 USC § 103*

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

8. Claims 4-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gutmark '489 in view of U.S. Patent Application Publication US 2001/0027638 to Paschereit et al. ("Paschereit").

Gutmark '489 includes a recitation that oscillations in the combustion system may be controlled/affected by fuel injection modulation (see col. 3, lines 26-31) but does not appear to go into further detail as to controlling the fuel injection via at least one control valve with different injection times, or quantities or affecting another interference frequency by fuel injection modulation.

Paschereit teaches a system and method for affecting thermoacoustic vibrations in the same field of endeavor as Gutmark '489. In Paschereit, the thermoacoustic vibrations are controlled by means of modulating fuel injected with respect to time (see page 1, paragraph 007). Such modulation may be effected at any frequency (id. and page 2, paragraphs 0027-0029). The modulation is effected by opening and closing one or two fuel valves to control fuel quantity (see page 2, paragraph 0022). Paschereit also notes that the fuel injection may be correlated with thermoacoustic vibrations measured in the combustion system (see page 2, paragraph 0017).

Therefore, in regard to claims 4-6, it would have been obvious to a person of ordinary skill in the art to modify the system and method of But mark'489 to incorporate the fuel injection modulation of Paschereit as this fuel modulation technique is recognized to control thermoacoustic vibrations in a combustion system for vibrations of any frequency (see Paschereit, page 1, paragraphs 0006 and 0007).

### *Conclusion*

9. This action is made non-final. A THREE (3) MONTH shortened statutory period for reply has been set. Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. U.S. Patents to Chaplin et al., Zinn et al., Seume et al., and Keller, and UK Patent Application publication GB 2 088 951 are cited to further show the state of the art concerning

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control of thermacoustic vibrations in combustion systems. U.S. Patent No. 6,170,265 was improperly cited by applicant on the PTO-1449 form filed 4/11/2005 but has been considered.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Josiah Cocks whose telephone number is (571) 272-4874. The examiner can normally be reached on weekdays from 8:00 AM to 5:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ira Lazarus, can be reached at (571) 272-4877. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://portal.uspto.gov/external/portal/pair>. Any questions on access to the Private PAIR system should be directed to the Electronic Business Center (EBC) at (866) 217-9197 (toll-free).

jcc  
June 8, 2005

  
JOSIAH COCKS  
PRIMARY EXAMINER  
ART UNIT 3749